

## **REMARKS / ARGUMENTS**

### **1. Dayco / McKesson Disclosure**

In accordance the undersigned's current understanding of the obligations imposed by *Dayco Products, Inc. v. Total Containment, Inc.*, 329 F.3d 1358 (Fed. Cir. 2003) and *McKesson Information Solutions, Inc. v. Bridge Medical, Inc.*, 487 F.3d 897 (Fed. Cir. 2007), the following co-pending application(s) whose file history may contain material information are identified. In assessing the patentability of the pending claims, the Office is respectfully requested to review the file history of each the listed co-pending application(s), determine whether such co-pending application has "similar subject matter" and, if so, consider each Office Action, including each reference on which a rejection is based, and each paper submitted by applicant therein.

a. Application serial no. 11/164,187, filed on November 14, 2005 and entitled *Integrated Heat Exchanges In A Rack For Vertical Board Style Computer Systems*, is currently pending before Examiner Teresa J. Walberg. Examiner Walberg issued a first office action that included a rejection of all claims and Assignee responded to that Office Action on September 5, 2007. A Notice of Allowance was issued on October 4, 2007.

### **2. Information Disclosure Statement**

The Forms PTO/SB/08a filed herewith list those references cited by Examiner Walberg in application serial number 11/164,187 identified above, including U.S. Patent No. 3,317,798, which was relied upon by Examiner Walberg in rejecting one or more claims.

### **3. Petition to Correct Inventorship**

Assignee submits contemporaneously herewith a Petition to Correct Inventorship

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pursuant to 35 U.S.C. § 116 and 37 C.F.R. § 1.48 to add the inventors of application serial number 11/164,187 to the subject application.

#### **4. Response to June 8, 2007 Office Action**

For the convenience of the Examiner and clarity of purpose, Assignee has reprinted the substance of the Office Action in *10-point bolded and italicized font*. Assignee's arguments immediately follow in regular font.

*3. Claims 1-13, 16-21, 25, 26, 28, 29, 32, 33, 36-48, 57-61 are rejected under 35 U.S.C. 102(b) as being anticipated by Miller et al. (US 6,305,180 - hereinafter, "Miller").*

*With respect to claim 1, Miller teaches a computer system comprising: a chassis (Generally depicted in Fig 2a) having an air inlet and an air outlet; an air mover (17a) associated with either the air inlet or the air outlet and establishing a forced air flow path within the chassis; a first computer module compartment (Between respective element 1b) positioned in the chassis and in the forced air flow path so that heat from the first compartment is transferred to the forced air flow; a second computer module compartment (Between respective element 1b) positioned in the chassis and in the forced air flow path; an air-to-fluid heat exchanger (1b) having a plurality of heat transfer surfaces (Pipes, Column 9, Lines 13-19) therein, and positioned in the chassis between the first and second compartments in the force air flow path such that the forced air flows through the heat exchanger and across the heat transfer surfaces and adapted to remove thereby removes a portion of the heat therefrom (See Fig 2a, see also Column 9, Lines 13-33).*

Assignee respectfully traverses this rejection of claim 1. Miller does not identically disclose the subject matter of previously presented claim 1 or currently amended claim 1. For example, in contrast to the Office's characterization of Miller (a characterization to which Assignee does not accede), and without limitation, Miller discloses an "open" rack of self-contained "modular digital electronic units 2," where "each unit includes a casing 3 having an air inlet 4, 4a, an air outlet 5, 5a, and a fan 6 for drawing air from the ambient into the casing 3,

where it flows over the circuitry and extracts heat from the components, whereby heated air exits from the air outlets.” See Miller at 8:3 & 8:12-16. In essence, each “unit 2” is like a desk top personal computer having a fan within the computer case for drawing air in an inlet, directing it to flow across the mother board and other components and then exit the computer case. Miller cannot anticipate previously presented claim 1.

Currently amended claim 1 recites that air is drawn in through the air inlet through a first heat exchanger and then through the first computer module compartment. Miller, which only discloses horizontal air flow, does not disclose or teach passing the incoming air through a first heat exchanger prior to passing the air through a first computer module compartment. For at least these reasons, currently amended claim 1 is patentable over the disclosure and teaching of Miller. Reconsideration and withdrawal of this rejection is requested.

*With respect to claim 16, Miller further teaches a computer system comprising: a chassis (Generally depicted in Fig 2a); an air mover (6, 17a) coupled to the chassis to induce a flow of air along a flow path within the chassis; a first computer module compartment (Between respective element 1 b) positioned in the air flow path within the chassis so that heat from the first compartment is transferred to the air flow (Column 9, Lines 1-7); and an air-to-fluid heat exchanger (1b) positioned at least proximate to the first computer module compartment and in the air flow path the heat exchanger including at least one internal fluid passage (Pipes, P) configured to carry a working fluid having a boiling point in the heat exchanger between about 45° F. and about 75° F (Column 10, Lines 59-63) to thereby remove a portion of the heat from the air flow (Column 9, Lines 13-33).*

Claim 16 and certain of its dependents (17, 18, 20, 21 and 25) have been canceled without prejudice for reasons unrelated to this rejection. Assignee does not accede to the Office’s characterization of Miller as applied to claim 16 and respectfully reserves its right to challenge that characterization in the future. Withdrawal of this rejection is requested.

*With respect to claim 26, Miller further teaches a computer system comprising: a chassis (Generally depicted in Fig 2a); an air mover (6, 17a) coupled to the chassis to induce a flow of air along a flow path within the chassis; a first computer module compartment (Adjacent I b) positioned in the chassis and in the air flow path; a first air to- liquid heat exchanger ( I b) positioned in the chassis and in the air flow path, wherein the first heat exchanger includes at least one internal fluid passage (Pipes, P) configured to carry a working fluid that absorbs heat from in the air flow path; and a second heat exchanger (another of 1b) positioned external to the chassis and in fluid communication with the first heat exchanger, wherein the second heat exchanger is configured to cool the working fluid (Column 9, Lines 13-33, see also Fig 2a).*

As discussed below with respect to claim 30, Assignee has chosen to incorporate the limitations of dependent claim 30 into independent claim 26. Assignee submits that for at least the reasons presented by the Examiner, currently amended claim 26 is patentable over Miller and the cited prior art. Reconsideration and withdrawal of this rejection of claim 26 is requested.

In light of this amendment to claim 26, Assignee does not accede to the Office's characterization of Miller as applied to claim 26 and respectfully reserves its right to challenge that characterization in the future.

*With respect to claim 33, Miller further teaches a computer system comprising: a chassis (Generally depicted in Fig 2a) having an air inlet and an air outlet; an air mover (6, 17a) positioned in flow communication with the chassis, wherein the air mover is configured to move air along a forced air flow path through at least a portion of the chassis; a first computer module compartment (Between respective element 1b) positioned in the air flow path in the chassis; a first plurality of computer modules (2a) held in the first computer module compartment at least partially in the air flow path; a second computer module compartment (Between respective element 1b) positioned in the air flow path in the chassis and spaced apart from the first computer module compartment; a second plurality of computer modules (2a) held in the second computer module compartment at least partially in the air flow path; and an air-to-fluid heat exchanger (1b) positioned in the air flow path in the chassis, wherein the heat exchanger is positioned at least partially downstream of the first computer module compartment and at least partially upstream of the second computer module compartment, and wherein the heat exchanger includes at least one opening (13) through which the air mover moves air to transfer heat from the air to the fluid (Column 9, Lines 13-33).*

Claim 33 has been made dependent to claim 26 for reasons unrelated to this rejection. Assignee does not accede to the Office's characterization of Miller as applied to claim 33 and respectfully reserves its right to challenge that characterization in the future.

*With respect to claim 57, Miller further teaches a method for dissipating heat generated by a computer module in a chassis (Generally depicted in Fig 2a), comprising: placing an air-to-fluid heat exchanger (1b) in the chassis; forcing air past the computer module (2a) in the chassis to transfer heat from the computer module to the of air; moving a working fluid through an internal passage (Pipes, P) of a the heat exchanger; moving at least a the portion of the heated air through the heat exchanger to transfer heat from the portion of air to the working fluid; and controlling the working fluid (Via 50) to maintain the working fluid at least proximate to the phase transition state while flowing through the internal passage (Where 50 can reduce liquid flow such that the working fluid remains proximate to the phase transition state).*

As discussed with respect to currently amended claim 1, currently amended claim 57 requires placing the heat exchanger adjacent the air inlet, cooling the air drawn in through air inlet and passing the cooled air over the heat generating object to transfer heat to a working fluid and controlling the working fluid proximate its phase transition state. Miller does not disclose or teach all of these limitations in the order presented. For example, and without limitation, Miller does not disclose or teach passing the incoming air through a heat exchanger prior to passing the air across a heat generating object. For at least these reasons, claim 57 is patentable over Miller. Reconsideration and withdrawal of this rejection is requested.

*With respect to claim 2, Miller further teaches that the heat exchanger (1b) is positioned at least partially downstream of the first computer module compartment and at least partially upstream of the second computer module compartment (See Fig 2a).*

Assignee has chosen to cancel claim 2 without prejudice. Assignee does not accede to

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the Office's characterization of Miller as applied to claim 2 and respectfully reserves its right to challenge that characterization in the future.

*With respect to claims 3 and 41, Miller further teaches that the heat exchanger (1b) includes at least one internal fluid passage (Pipes, P) configured to carry a working fluid.*

For at least the reasons discussed above with respect to claim 1, dependent claim 3 is likewise patentable over Miller. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to claim 3 and respectfully reserves its right to challenge that characterization in the future. Reconsideration and withdrawal of this rejection is requested.

As discussed above with respect to claim 33, claim 41 has been made dependent on claim 26 as well and is patentable for at least the same reasons as claim 26. Assignee does not accede to the Office's characterization of Miller as applied to canceled claim 41 and respectfully reserves its right to challenge that characterization in the future.

*With respect to claims 4 and 42, Miller further teaches that the heat exchanger (1b) includes at least one internal fluid passage (Pipes, P) configured to carry a working fluid having a boiling point in the heat exchanger between about 45" F. and about 75" F (Column 10, Lines 59-63).*

For at least the reasons discussed above with respect to claim 1, dependent claim 4 is likewise patentable over Miller. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to claim 4 and respectfully reserves its right to challenge that characterization in the future. Reconsideration and withdrawal of this rejection is requested.

As discussed above with respect to claim 33, claim 42 has been made dependent on claim 26 as well and is patentable for at least the same reasons as claim 26. Assignee does not accede

to the Office's characterization of Miller as applied to canceled claim 42 and respectfully reserves its right to challenge that characterization in the future.

*With respect to claim 5, Miller further teaches that the heat exchanger (1b) includes at least one opening (13) through which air can pass from at least proximate the first computer module compartment to at least proximate the second computer module compartment.*

*With respect to claim 6, Miller further teaches that the heat exchanger (1b) is positioned at least partially between the first and second computer module compartments in the chassis (See Fig 2a).*

Assignee has chosen to cancel claims 5 and 6 without prejudice. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to claims 5 and 6 and respectfully reserves its right to challenge that characterization in the future.

*With respect to claim 7, Miller further teaches that the heat exchanger (1b) is a first heat exchanger, and wherein the computer system further comprises: a third computer module compartment (Where another of 2a is placed) positioned in the chassis and in the air flow path; and a second heat exchanger (Another of 1b) positioned in the chassis and in the air flow path, wherein the second heat exchanger is positioned at least partially downstream of the second computer module compartment and at least partially upstream of the third computer module compartment (See Fig 2a).*

*With respect to claim 8, Miller further teaches that the heat exchanger (1b) is a first heat exchanger, and wherein the computer system further comprises: a third computer module compartment (Where another of 2a is placed) positioned in the chassis and in the air flow path; and a second heat exchanger (Another of 1b) positioned in the chassis and in the air flow path, wherein the second heat exchanger is positioned at least partially downstream of the second computer module compartment .and at least partially upstream of the third computer module compartment (See Fig 2a), wherein the first, second, and third computer module compartments, and the first and second heat exchangers, are arranged vertically in the chassis (See Fig 2a).*

*With respect to claim 9, Miller further teaches that the first computer module compartment, the second computer module compartment, and the heat exchanger (1b) are arranged vertically in the chassis (See Fig 2a).*

For at least the reasons discussed above with respect to claim 1, dependent claims 7, 8

and 9 are likewise patentable over Miller. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to claims 7, 8 and 9, and respectfully reserves its right to challenge that characterization in the future. Reconsideration and withdrawal of this rejection is requested.

*With respect to claims 10 and 17, Miller further teaches that the first computer module compartment (Between respective I b) is configured to hold at least a first computer module (2a) oriented edgewise with respect to the air flow path (See Fig 2a). With respect to claims 11, 28, and 32, Miller further teaches that the first computer module compartment (Between respective I b) is configured to hold a plurality of computer modules (2a) oriented edgewise with respect to the air flow path (See Fig*

For at least the reasons discussed above with respect to claim 1, dependent claim 10 is likewise patentable over Miller. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to claim 10 and respectfully reserves its right to challenge that characterization in the future. Reconsideration and withdrawal of this rejection is requested.

As discussed above, claim 17 has been canceled without prejudice. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to canceled claim 17 and respectfully reserves its right to challenge that characterization in the future.

*With respect to claims 12, 29, 39, Miller further teaches that the first computer module compartment is configured to hold at least a first computer module oriented edgewise with respect to the air flow path toward a first side of the heat exchanger, and wherein the second computer module compartment is configured to hold at least a second computer module oriented edgewise with respect to the air flow path toward a second side of the heat exchanger opposite to the first side of the heat exchanger (See Fig 2a).*

For at least the reasons discussed above with respect to claim 1, dependent claim 12 is likewise patentable over Miller. Therefore, Assignee does not accede to the Office's



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characterization of Miller as applied to claim 12 and respectfully reserves its right to challenge that characterization in the future. Reconsideration and withdrawal of this rejection is requested.

For at least the reasons discussed above with respect to claim 26, dependent claim 29 is likewise patentable over Miller. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to claim 29 and respectfully reserves its right to challenge that characterization in the future. Reconsideration and withdrawal of this rejection is requested.

As discussed above with respect to claim 33, claim 39 has been made dependent on claim 26 as well and is patentable for at least the same reasons as claim 26. Assignee does not accede to the Office's characterization of Miller as applied to canceled claim 39 and respectfully reserves its right to challenge that characterization in the future. .

*With respect to claims 13 and 43, Miller further teaches a first computer module (2a) carried by the first computer module compartment, wherein the first computer module includes at least a first computer processor (Column 8, Lines 28-31, "components"); and a second computer module (Another of 2a) carried by the second computer module compartment, wherein the second computer module includes at least a second computer processor (Column 8, Lines 28-31, "components").*

For at least the reasons discussed above with respect to claim 1, dependent claim 13 is likewise patentable over Miller. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to claim 13 and respectfully reserves its right to challenge that characterization in the future. Reconsideration and withdrawal of this rejection is requested.

As discussed above with respect to claim 33, claim 43 has been made dependent on claim 26 as well and is patentable for at least the same reasons as claim 26. Assignee does not accede to the Office's characterization of Miller as applied to canceled claim 43 and respectfully reserves its right to challenge that characterization in the future.

*With respect to claim 18, Miller further teaches that the first computer module compartment is position at least proximate to a first side of the heat exchanger (See Fig 2a) and wherein the chassis further includes a second computer module compartment (Between respective element 1b) positioned in the air flow path in the chassis at least proximate to a second side of the heat exchanger opposite to the first side of the heat exchanger (See Fig 2a).*

*With respect to claim 19, Miller further teaches that the heat exchanger (1b) is a first heat exchanger, and wherein the computer system further comprises: a third computer module compartment (Between respective element I b) positioned in the air flow path in the chassis; and a second heat exchanger (I b) positioned at least partially between the second and third computer module compartments in the air flow path in the chassis, the second heat exchanger (I b) including at least one internal fluid passage (Pipes, P) configured to carry a working fluid having a boiling point in the second heat exchanger between about 45" (Column 10, Lines 59-63).*

*With respect to claim 20, Miller further teaches an air mover (6, 17a) configured to move air through at least one opening (13) in the heat exchanger along the air flow path in the chassis.*

*With respect to claim 21, Miller further teaches a working fluid, wherein the working fluid is carried by the internal fluid passage of the heat exchanger (Column 10, Lines 33-63).*

*With respect to claim 25, Miller further teaches that the heat exchanger (1b) is positioned upstream from the first computer module compartment in the chassis (See Fig 2a).*

As discussed above, claim 18, 20, 21 and 25 have been canceled without prejudice. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to canceled claims 18, 20, 21 and 25 and respectfully reserves its right to challenge that characterization in the future.

Claim 19 has been made dependent on claim 1 and is also patentable for at least the reasons presented above for claim 1. Assignee does not accede to the Office's characterization of Miller as applied to claim 19 and respectfully reserves its right to challenge that characterization in the future.

*With respect to claim 36, Miller further teaches that the air mover (17a) is carried by the chassis (See Figs 2a, where the heat exchanger 1b) carries 17a which in turn is carried by the chassis).*

*With respect to claim 37, Miller further teaches that the heat exchanger (1b) is a first heat exchanger, and wherein the computer system further comprises: a third computer module compartment (Between respective element I b) positioned in the air ' flow path in the chassis and spaced apart from the second computer module compartment; a third plurality of computer modules (2a) held in the third computer module compartment at least partially in the air flow path; and a second heat exchanger (1b) positioned in the air flow path in the chassis, wherein the second heat exchanger is positioned at least partially downstream of the second computer module compartment and at least partially upstream of the third computer module compartment, and wherein the heat exchanger includes at least one opening (13) through which the air mover moves air (See Fig 2a).*

*With respect to claim 38, Miller further teaches that the air mover (17a), the first computer module compartment, the second computer module compartment, and the heat exchanger (1b) are arranged vertically with respect to the chassis (See Fig 2a).*

*With respect to claim 40, Miller further teaches that each of the first plurality of computer modules (2a) is individually carried by the first computer module compartment (Fig 2a), wherein each of the first plurality of computer modules includes at least a first computer processor (Column 8, Lines 28-31 - "components"), wherein each of the second plurality of computer modules (2a) is individually carried by the second computer module compartment (Fig 2a), and wherein each of the second plurality of computer modules includes at least a second computer processor (Column 8, Lines 28- 31 - "components").*

As discussed above with respect to claims 36, 37, 38 and 40 have been made dependent on claim 26 as well and are patentable for at least the same reasons as claim 26. Assignee does not accede to the Office's characterization of Miller as applied to these claims and respectfully reserves its right to challenge that characterization in the future.

*With respect to claims 44-48, the method steps recited in the claims are inherently necessitated by the device structure as taught by the Miller reference.*

Claims 44 - 48 have been canceled without prejudice and not in response to this rejection. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to

canceled claims 44 - 48 and respectfully reserves its right to challenge that characterization in the future.

*With respect to claim 58, Miller further teaches moving a working fluid through an internal passage of a heat exchanger includes moving a working fluid having a boiling point between about 45° F. and about 75° F (Wherein at the appropriate pressure, water can have a boiling point between about 45F and 75F).*

*With respect to claim 59, Miller further teaches moving a working fluid through an internal passage of a heat exchanger includes moving a working fluid having a boiling point between about 50° F. and about 65° F (Wherein at the appropriate pressure, water can have a boiling point between about 50F and 65F).*

*With respect to claim 60, Miller further teaches that the computer module is a first computer module, and wherein the method further comprises, after moving the portion of air through the heat exchanger, moving the portion of air past a second computer module (2a) in the chassis to transfer heat from the second computer module to the portion of air (See Column 9, Lines 13-33, see also Fig 2a).*

*With respect to claim 61, Miller further teaches that controlling the working fluid to maintain the working fluid at least proximate to the phase transition state includes controlling the pressure of the working fluid (Where 50, a pump, controls the working fluid and the pump controls the pressure of the working fluid).*

For at least the reasons discussed above with respect to claim 57, dependent claim 58, 59, 60 and 61 are likewise patentable over Miller. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to claim 58, 59, 60 and 61, and respectfully reserves its right to challenge that characterization in the future. Reconsideration and withdrawal of this rejection is requested.

*4. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of Khrustalev et al. (US 20031001 0477 - hereinafter, "Khrustalev").*

*With respect to claims 22-23, Miller teaches the limitations of claim 16 and*

*further teaches that the working fluid is carried by the internal fluid passage (Pipes, P) of the heat exchanger, but fails to teach that the working fluid is a refrigerant where first portion of the working fluid is in a liquid state and a second portion of the working fluid is in a gaseous state in the heat exchanger. Khrustalev teaches a working fluid which is a refrigerant [0039] wherein a first portion of the working fluid is in a liquid state and a second portion of the working fluid is in a gaseous state (The working fluid will be both in a liquid and gaseous state in the heat exchanger since the heat from the board (9) is causing the fluid to change phases). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Khrustalev with that of Miller to provide an alternate equivalent medium for removing heat from the air. In the event that one of the pipes (P) were to break, a refrigerant will evaporate rather than spill onto the components and cause damage.*

*5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mill in view of Iizuka et al. (US 6,258,293 - hereinafter, "Iizuka"). With respect to claim 24, Miller teaches the limitations of claim 26 above but is silent as to the working fluid has a boiling point in the first heat exchanger between about 50F and about 65F. Iizuka teaches the conventionality of using a refrigerant having a boiling point between 50 and 65F (Column 1, Lines 10-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Iizuka with that of Miller to provide adequate heat transfer capabilities.*

For reasons unrelated to this rejections, claims 22, 23 and 24 have been made dependent on claim 1. For at least the reasons presented above with respect to claim 1, claims 22, 23 and 24 are likewise patentable. Therefore, Assignee does not accede to the Office's characterization of Miller as applied to canceled claims 22, 23 and 24 and respectfully reserves its right to challenge that characterization in the future.

*6. Claims 27, 34, 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of Salt (US 5,603,375). With respect to claim 27, Miller teaches the limitations of claim 26 above but is silent as to the working fluid has a boiling point in the first heat exchanger between about 45F and about 75F. Salt teaches utilizing a working fluid which has a boiling point in a heat exchanger of between about 45F and 75F (Column 2, Lines 1-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Salt with that of Miller to provide adequate heat transfer capabilities. With respect to claim 34, Miller teaches the limitations of claim 33 above and further teaches that the air movers move air horizontally through the chassis but is silent as to the vertical configuration of the chassis with the air mover being positioned toward the top of the chassis to move air up through the chassis, however it would have been*

*obvious to one of ordinary skill in the art at the time the invention was made to rearrange the chassis 90 degrees such that the heat exchangers .I b are arranged vertically since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70. In the present case one would be motivated to arrange the chassis vertically such that it would fit within a room. With respect to claims 50, the method steps recited in the claim are inherently necessitated by the device structure as taught by the Miller and Salt references.*

For at least the reasons discussed above with respect to claim 26, dependent claim 27 is likewise patentable over the cited art. Therefore, Assignee does not accede to the Office's characterization of the art as applied to claim 27, and respectfully reserves its right to challenge that characterization in the future. Reconsideration and withdrawal of this rejection is requested.

As discussed above with respect to claim 33, claim 34 has been made dependent on claim 26 as well and is patentable for at least the same reasons as claim 26. Assignee does not accede to the Office's characterization of the art as applied to canceled claim 34 and respectfully reserves its right to challenge that characterization in the future.

Lastly, for reasons unrelated to this rejection, claim 50 has been canceled without prejudice. Assignee does not accede to the Office's characterization of the art as applied to canceled claim 50 and respectfully reserves its right to challenge that characterization in the future.

*7. Claims 49, 51, 54, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of James et al. (US 4,756,164, hereinafter, "James"). With respect to claims 49 and 51, Miller teaches the limitations of claim 44 as per above but is silent as to the working fluid being a refrigerant which boils in the heat exchanger. James teaches a heat exchanger which has a refrigerant that boils to remove heat from a system (Column 4, Lines 12-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of James with that of Miller to provide an alternate equivalent means of transferring heat from a device. In the event that one of the pipes (P) were to break, a refrigerant will evaporate rather than spill onto the components and cause damage.*

For reasons unrelated to this rejection, claim 49 has been canceled without prejudice. Assignee does not accede to the Office's characterization of the art as applied to canceled claim 49 and respectfully reserves its right to challenge that characterization in the future.

As discussed below with respect to claim 56, Assignee has chosen to incorporate the limitations of dependent claims 55 and 56 into independent claim 51. Assignee submits that for at least the reasons presented by the Examiner, currently amended claim 51 is patentable over the cited prior art. Reconsideration and withdrawal of this rejection of claim 51 is requested.

In light of this amendment to claim 51, Assignee does not accede to the Office's characterization of the art as applied to claim 51 and respectfully reserves its right to challenge that characterization in the future.

*With respect to claim 54, Miller further teaches that the computer module is a first compute module, and wherein the method further comprises, after moving the portion of air through the heat exchanger, moving the portion of air past a second computer module in the chassis to transfer heat from the second computer module to the portion of air (See Fig 2a of Miller).*

*With respect to claim 55, Miller further teaches that the computer modules is a first computer module, the working fluid is a first working fluid, and the heat exchanger is a first heat exchanger having a first internal passage, and wherein the method further comprises: after moving the portion of air through the first heat exchanger, moving the portion of air past a second computer module in the chassis to transfer heat from the second computer module to the portion of air; moving a second working fluid through a second internal passage of a second heat exchanger positioned at least proximate to the second computer module in the chassis; and moving the portion of air through the second heat exchanger to transfer heat from the portion of air to the second heat exchanger and boil at least a portion of the second working fluid in the second internal passage (See Fig 2a of Miller, see Column 4, Lines 12-16 of James regarding the boiling of a fluid in a heat exchanger).*

Claim 54 is dependent upon amended claim 51 and for at least the reasons presented for

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claim 51, claims 54 is likewise patentable. Therefore, Assignee does not accede to the Office's characterization of the art as applied to canceled claims 54 and respectfully reserves its right to challenge that characterization in the future.

As discussed below with respect to claim, claim 55 has been canceled without prejudice. Assignee does not accede to the Office's characterization of the art as applied to canceled claim 55 and respectfully reserves its right to challenge that characterization in the future.

***8. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of James and further in view of Salt (US 5,603,375). With respect to claim 52, Miller in view of James teaches the limitations of claim 51 above but is silent as to the working fluid has a boiling point in the first heat exchanger between about 45F and about 75F. Salt teaches utilizing a working fluid which has a boiling point in a heat exchanger of between about 45F and 75F (Column 2, Lines 1-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Salt with that of Miller and James to provide adequate heat transfer capabilities. Additionally, in the event that one of the pipes (P) were to break, a refrigerant will evaporate rather than spill onto the components and cause damage.***

***9. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of James and further in view of Iizuka. With respect to claim 53, Miller in view of James teaches the limitations of claim 51 above but is silent as to the working fluid has a boiling point in the first heat exchanger between about 45F and about 75F. Salt teaches utilizing a working fluid which has a boiling point in a heat exchanger of between about 45F and 75F (Column 2, Lines 1-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Salt with that of Miller to provide adequate heat transfer capabilities. Additionally, in the event that one of the pipes (P) were to break, a refrigerant will evaporate rather than spill onto the components and cause damage.***

For at least the reasons presented above with respect to claim 51, claims 52 and 53 are likewise patentable. Therefore, Assignee does not accede to the Office's characterization of the art as applied to canceled claims 52 and 53, and respectfully reserves its right to challenge that characterization in the future.



*10. Claims 30, 31, and 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:*

*With respect to claim 30, the allowability resides in the overall structure of the device as recited in dependent claim 30 and at least in part because claim 30 recites, " the second heat exchanger is spaced apart from the chassis". The aforementioned limitations in combination with all remaining limitations of claims 26 and 30 are believed to render said claim 30 patentable over the art of record. Miller teaches (In Fig 2a) a second heat exchanger ( 1 b) and further teaches that the heat exchanger is positioned against the chassis, not spaced apart from it. With respect to claim 31, the allowability resides in the overall structure of the device as recited in dependent claim 31 and at least in part because claim 31 recites, " a controller.. to maintain the working fluid in phase transition within the first heat exchanger". The aforementioned limitations in combination with all remaining limitations of claims 26 and 31 are believed to render said claim 31 patentable over the art of record. Miller teaches (In Fig 5) a primary, and secondary cooling loop but fails to teach a controller coupled to the second heat exchanger (Pipes, P) to maintain the working fluid in phase transition within the first heat exchanger. Further the Examiner does not believe such a limitation is merely an obvious variation of the present invention to Miller.*

Assignee thanks the Examiner for his thorough examination of this application and for the favorable treatment given 30. As discussed above, Applicant has chosen to incorporate the substance of dependent claim 30 into claim 26 and, therefore, claim 30 has been canceled without prejudice.

*With respect to claim 56, the allowability resides in the overall structure of the device as recited in dependent claim 56 and at least in part because claim 56 recites, " moving a first portion of a refrigerant received from a refrigeration source.: moving a second portion of the refrigerant received from the refrigerant source". The aforementioned limitations in combination with all remaining limitations of claims 51, 55, 56 are believed to render said claim 56 patentable over the art of record. Miller teaches (In Fig 5) a primary and secondary cooling loop but fails to teach a refrigerant source which is tapped to provide the working fluid for the first and second internal passages.*

Assignee thanks the Examiner for his thorough examination of this application and for

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the favorable treatment given claim 56. Applicant has chosen to incorporate the substance of claim 56 (and interim claim 55) into claim 51.

*11. Applicant's arguments with respect to claims 1-13, 16-61 have been considered but are moot in view of the new ground(s) of rejection.*

In light of the mootness of the previous rejections, Assignee hereby expressly retracts its previous arguments with respect to previously presented claims 1 - 13 and 16 – 61 in accordance with *Hakim v. Canon Avent Group PLC*, 479 F.3d 313, 81 U.S.P.Q.2d (BNA) 1900 (Fed. Cir. 2007).

## **5. New Claims**

Assignee has presented herein new claim 72, which is substantially similar, but not identical to previously presented claim 56. For at least the reasons expressed by the Examiner, new claim 72 is patentable over the art of record.

## **6. Other Claim Amendments**

Assignee has made amendments to various claims that are not discussed above in direct relation to a patentability rejection. These amendments were made for reasons unrelated to patentability and may or may not be narrowing in scope.

## **7. Conclusion**

Assignee submits that each claim presented herein is patentable over the art of record. A timely notice of allowance is respectfully requested.

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Assignee thanks the Examiner for his consideration and effort on this file. If there are any questions or if additional information is needed, the Examiner is invited to telephone or email the undersigned.

Respectfully submitted,

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